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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,519	09/02/2003	Ronald Eugene McRae JR.	133040	3886

7590

12/15/2004

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EXAMINER

WHITE, DWAYNE J

ART UNIT

PAPER NUMBER

3745

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/653,519

**Applicant(s)**

MCRAE ET AL.

**Examiner**

Dwayne J White

**Art Unit**

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-16,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3,10,17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/3/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second opening extending through the rotor blade downstream sidewall such that the second opening is between the rotor blade platform and dovetail (claims 3, 10, 16 and paragraph 21, lines 3-5) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

On page 5, paragraph 23, lines 1-2, it states "Airflow discharged from opening 134 is also channeled through cooling opening 134 towards aft angel wing 102." It is unclear whether opening 134 and cooling opening 134 should be different openings or Applicant is simply stating that airflow discharged from opening 134 is channeled towards the aft angel wing 102.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 6, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Demers et al. (6,416,284). Demers et al. disclose a rotor blade assembly comprising a plurality of rotor blades each having a platform 40, an airfoil 42, a shank 38 and a dovetail 36. A cooling circuit 52/54/56 extends through a portion of the shank for supplying cooling air for impingement cooling of a portion of the rotor blade, channeling purge air downstream from the rotor blade into a cavity defined within the gas turbine and to facilitate reducing platform creep during engine operation (Column 4, lines 56-60).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 7-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (6,341,939) in view of Demers et al. Lee discloses a rotor blade assembly comprising a plurality of rotor blades each having a platform 20, an airfoil 18, a shank 22 having convex and concave sidewalls connected by upstream and downstream rotor blade sidewalls, and a dovetail 24. A cooling circuit 28 extends through a portion of the shank for supplying cooling air for impingement cooling of a portion of the rotor blade. The cooling circuit for reducing platform creep having a first opening extending through the shank concave sidewall for directing cooling air for impingement cooling of the platform thus reducing operating temperatures and a second opening in the shank convex sidewall. Lee does not disclose the second opening directing cooling air downstream of the rotor into a cavity.

Demers et al. teach a similar cooling scheme wherein the cooling holes located on the shank of the rotor blade are arranged such that the cooling air flows into the aft (downstream) disk wheel space (buffer cavity) as well as cooling the platform (Column 4, line 34-Column 5, line 8). Since both Lee and Demers et al. disclose cooling circuit structures wherein cooling passages are provided in the shank for cooling the platform and Lee further discloses inclining the cooling holes downstream towards the platform trailing edge (Column 4, lines 1-6), it would

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have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the cooling passage of Lee, with the teachings of Demers et al., by having the second opening directing cooling air downstream of the rotor into a cavity for the purpose of providing purge air to the buffer cavity.

## **CONCLUSION**

### ***Allowable Subject Matter***

Claims 3, 10, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leone et al. (6,428,270) disclose a rotor assembly wherein a cooling passage extending from the chamber 58 through the downstream sidewall to provide purge air to the downstream rotor blade cavity.

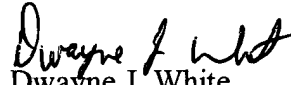
### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne J White whose telephone number is (571) 272-4825. The examiner can normally be reached on 7:30 am to 5 pm T-F and alternate Mondays.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Dwayne J. White  
Patent Examiner  
Art Unit 3745

DJW

  
EDWARD K. LOOK  
SUPERVISORY PATENT EXAMINER  
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12/10/09